G. L. BONHAM.

SPRING MOTOR FOR BARBERS' MACHINES.

APPLICATION FILED MAY 20, 1914.

1,120,894. Patented Dec. 15, 1914.

Fig. 3.

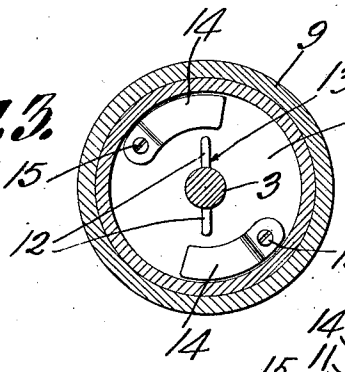


Fig. 1.

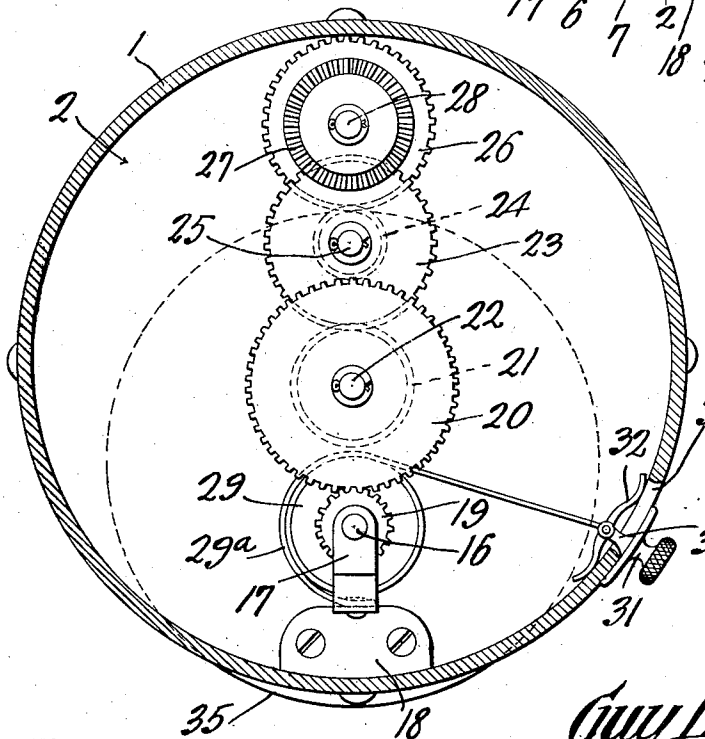
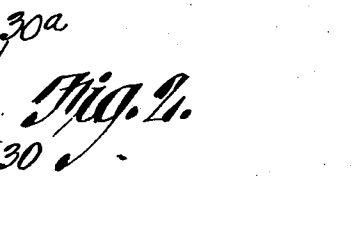


Fig. 2.



Witnesses

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SPRING-MOTOR FOR BARBERS' MACHINES.

1,120,894. Specification of Letters Patent. Patented Dec. 15, 1914.

Application filed May 20, 1914. Serial No. 839,849.

To all whom it may concern:

Be it known that I, GUY L. BONHAM, a citizen of the United States, residing at West Hartford, in the county of Hartford and State of Connecticut, have invented a new and useful Spring-Motor for Barbers' Machines, of which the following is a specification.

The present invention appertains to a machine adapted to be employed by barbers, masseurs, and the like, and aims to provide a novel and improved device of that character.

It is the object of the present invention to provide a barber's or masseur's machine which will be improved generally in its construction, to enhance the utility thereof.

One of the specific objects of the present invention is to provide a novel and improved spring motor, which is adapted to be wound in a convenient and effective manner, and which is adapted for rotating a fan, safety razor, massage instrument, or the like, in a thoroughly effective manner.

A further object of the present invention is to provide novel means for applying the implement, such as a fan, safety razor, massage implement, or the like, to the spring motor.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed, can be made within the scope of what is claimed, without departing from the spirit of the invention.

The present invention has been illustrated in its preferred embodiment in the accompanying drawing, wherein:—

Figure 1 is an elevation of the machine, portions being broken away and portions being shown in section. Fig. 2 is an enlarged cross section taken on the line 2—2 of Fig. 1. Fig. 3 is an enlarged cross section taken on the line 3—3 of Fig. 1.

In carrying out the present invention, there is provided a case or body including a cup-shaped section or member 1, and a plate or disk 2 detachably secured within the mouth of the cup or member 1. A shaft or spindle 3 is journaled through the central portion of the cup 1, and has a handle 4 secured upon its outer projecting portion. A driving wheel 5 is journaled or mounted loosely upon that end of the shaft or spindle 3 projecting into the case 1—2, adjacent the back of the case formed by the cup 1, the wheel 5 being provided with a forwardly or outwardly projecting rim or annular flange 6 which is provided with an internal bevel gear 7 at its forward or free edge. A spiral spring 8 is disposed within the rim 6 of the wheel 5, and has its ends attached to the said rim 6 and the forward end of the shaft 3, whereby the spring 8 may be wound up by rotating the shaft 3 through the medium of the handle 4, as will hereinafter appear.

As a means for operatively connecting the case 1—2 and handle 4, the back of the case is provided with an annular outstanding or rearwardly projecting flange 9 surrounding the shaft 3 and the back of the case is further provided with an annular series of ratchet teeth 10 disposed within the flange 9 and surrounding the shaft 3. A cup-shaped element 11 is applied to the forward end of the handle 4, and has its rim fitting snugly within the flange 9 to enable the handle and case to rotate readily relative to one another. In order to hold the handle 4 and the element 11 against rotation on the shaft 3, the shaft 3 is provided with keys 12 engaged within the forward end of the handle 4 and within the slot 13 provided in the element 11. Spring pawls or dogs 14 are secured to the forward end of the handle 4 within the cup-shaped element 11, screws or other securing members 15 being engaged through the butt ends of the pawls or dogs 14, and engaging through element 11 and into the handle 4. The pawls or dogs 14 are of arcuate form, and have their free ends projecting forwardly and engaging the annular series of ratchet teeth 10 to lock the shaft 3 and handle 4 against retrograde or reverse rotation when the spring 8 is wound up.

A driving shaft or spindle 16 is journaled through the front plate 2 of the case, eccentric of the axis of the case and shaft 3. The forward end of the shaft or arbor 16 projects beyond the front plate 3, and the rear or inner end of the shaft 16 is journaled through the free end of an arm 17 of a plate or member 18 attached to the inner or rear face of the plate 2 adjacent the periphery of the case. The shaft or spindle 16 is connected by a train of gears to the gear wheel 5, and to this end, a relatively small spur

gear 19 is keyed or secured upon the inner end portion of the shaft 16 adjacent the supporting arm or bracket 17, and intermeshes with a relatively large spur gear 20 having a relatively small gear 21 attached thereto and journaled upon a stub 22 threadedly or otherwise engaged to the inner face of the plate 2. The spur gear 21 intermeshes with a relatively large spur gear 23 having a relatively small spur gear 24 attached thereto and journaled upon a stub 25 attached to the inner face of the plate 2. The spur gear 24 intermeshes with a relatively large spur gear 26 having a bevel gear 27 attached to its hub and intermeshing with the inner bevel gear 7 of the gear wheel 5, the hub of the spur gear 26 and bevel gear 27 being journaled upon a stub 28 attached to the inner face of the plate 2. The train of gears 19, 20, 21, 23, 24, 26 and 27, serve to suitably increase the ratio of rotation of the shaft 16 with respect to the gear wheel 5. It is to be noted that the train of gears is carried by the inner side of the front plate 2, in order that the gear train may be applied to the plate 2 prior to the assemblage of the plate 2 with the cup 1, and whereby when the plate 2 is applied to the cup 1, the bevel gear 27 will intermesh with the gear wheel 5 to operatively connect the gear wheel 5 and shaft 16.

As a means for controlling the velocity of and for arresting the movement of the shaft 16, a brake drum or wheel 29 is secured upon the shaft 16 between the spur gear 19 and the front plate 2, and a brake band 29^a has one end attached to the arm 17 and partially surrounds the drum or wheel 29. The other end of the brake band 29^a is attached to the inner end of the shank 30 of a button 31. The button 31 is movable upon the periphery of the case 1—2, and its shank 30 projects through an arcuate slot 30^a provided in the periphery of the case. A double leaf spring or friction member 32 is attached to the inner end of the shank 30 and engages the interior of the case, to hold the button 31 at any position to which it is slid. Inasmuch as the shaft 16 is eccentric of the case, the movement of the button 31 will either loosen or tighten the brake band 29^a, as desired. As seen in Fig. 2, the button 31 is moved to the lower end of the slot 30^a or toward the plate 18, whereby the brake band 29^a is loosened to release the brake drum or wheel 29, but if the button is raised or moved to the other end of the slot 30^a, the brake band 29^a will be drawn taut and caused to frictionally grip the brake drum 29. If the button 31 is at any intermediate position, the friction between the drum 29 and brake band 29^a will be varied, to thereby vary the velocity of the shaft 16 when it is rotated by the spring 8.

The outer or forward end portion of the shaft 16 is adapted for driving various instruments, such as a fan, a rotary safety razor, a massage implement, and the like.

As illustrated in the drawing, the implement is in the form of a fan 33. The fan 33 may be taken to represent any suitable rotary implement. In applying the implement 33 to the spring motor, a guard or cage 34 of any suitable character, according to the implement 33 employed, is provided, so as to surround and protect the implement 33. The guard or cage 34 includes an inner ring 35 which is threaded or otherwise engaged upon an annular eccentric flange 36 formed upon the front face of the plate 2 and surrounding the shaft 16. The hub 37 of the implement 33 is preferably elongated, and has its outer end closed and rounded, the hub 37 being slipped over the forward or outer end of the shaft 16 and having an open slot or keyway 38 at its inner or rear end which engages a key or lug 39 provided upon the shaft 16 adjacent the plate 2, whereby the implement 33 will be constrained to rotate with the shaft 16. The front of the cage or guard 34 is provided with a bearing 40 adapted to seat against the outer end of the hub 37 to maintain the hub in position upon the shaft 16, without impairing the rotation of the implement 33.

In applying the implement 33 and guard 34 to the case 1—2 and shaft 16, it being understood that the implement 33 is disposed within the guard 34, the guard is moved over the shaft 16, and the hub 37 of the implement 33 is simultaneously slipped over the shaft 16. The ring 35 of the guard 34 is then engaged to the flange 36 of the case 1—2, and the bearing 40 of the guard 34 in contacting with the outer end of the hub 37, will force the hub inwardly and in this manner the slot 38 of the hub may be engaged to the lug or key 39 of the shaft 16. The bearing 40 of the guard or case 34 will thus hold the implement 33 in position upon the shaft 16, as long as the guard or cage 34 is attached to the plate 2. As soon as the guard 34 is detached from the plate 2, the implement 33 may be slipped out of engagement from the shaft 16, for the substitution of a razor, massage implement, or the like, having a hub 37 similar to the fan 33 above described. It is of course understood, that when a razor, massage implement, or other implement is employed, the guard or cage 34 therefor must be of corresponding formation.

To wind up the spring 8, the case 1—2 is held by one hand, and the handle 4 is properly rotated by the other, the brake band 29^a having been previously tightened, to hold the shaft 16 against rotation. Thus, the gear wheel 5 will be held stationary, during the winding up of the spring 8, and the pawls or dogs 14 carried by the forward end

of the handle 4, in engaging the ratchet teeth 10, will lock the handle 4 against retrograde or reverse rotation when it is released to renew the grasp of the hand thereon during the winding of the spring. Now, after the spring 8 has been sufficiently wound up, the implement 33 may be actuated when desired, by releasing the brake band 29^a by properly manipulating the button 31, so that when the brake band 29^a is completely released from the drum 29, the implement 33 will be permitted to rotate at its full speed, whereas if the brake band 29^a is frictionally engaged more or less with the drum 29, the velocity of the shaft 16 may be reduced, or completely checked or arrested.

From the foregoing, taken in connection with the drawing, the advantages and capabilities of the present machine will be obvious to those versed in the art, without further comment being necessary, it being noted that the objects aimed at have been carried out satisfactorily by the provision of the peculiar structure herein disclosed.

Having thus described the invention, what is claimed as new is:—

1. In a device of the character described, a case, a shaft journaled through the back thereof, a handle secured upon the outer portion of the said shaft, means between the handle and case for locking the handle against reverse rotation relative to the case, a shaft journaled through the front of the case and adapted to receive a rotary implement thereon, a driving wheel mounted within the case and operatively connected to the last mentioned shaft, and a spiral spring connecting the first mentioned shaft and the said wheel.

2. In a device of the character described, a case, a shaft journaled through one portion thereof, a handle mounted upon the outer portion of the shaft, the case having an annular flange surrounding the said shaft and the handle having means snugly engaging the said flange, the case and handle having a coöperating pawl and ratchet teeth within the said flange, a second shaft journaled through another portion of the case, a driving wheel mounted within the case and operatively connected to the second shaft, and a spiral spring connecting the said wheel and the first mentioned shaft.

3. In a device of the character described, a case, a shaft journaled through one portion thereof, means for locking the said shaft against reverse rotation, a gear wheel mounted loosely upon the said shaft within the case and having a rim provided with gear teeth at its free edge, a spiral spring disposed within the said rim and attached to the said rim and shaft, a second shaft journaled through another portion of the case and adapted to receive a rotary implement on its outer portion, and means for operatively connecting said second shaft and gear wheel and including a gear intermeshing with the teeth of said gear wheel.

4. In a device of the character described, a case including a cup and a plate detachably secured within the mouth of the cup, a shaft journaled through the cup, means for locking the said shaft against reverse rotation, a gear wheel mounted loosely upon the said shaft within the case, a spiral spring connecting said gear wheel and shaft, a shaft journaled through the said plate, and a gear train carried by the inner face of the said plate and operatively connecting the last mentioned shaft and the said gear wheel.

5. In a device of the character described, a case, a shaft journaled through one portion thereof, a spring motor disposed within the case and operatively connected to the said shaft, a rotary implement having a hub mounted upon the outer portion of the shaft, the hub and shaft having interengageable means for causing the implement to rotate with the shaft, and a guard surrounding the said implement and attachable to the case, the said guard having a bearing adapted to contact with the outer end of the hub for holding the hub in place upon the shaft.

6. In a device of the character described, a case including a cup and a plate detachably secured within the mouth of the cup, a shaft journaled through the cup, a handle mounted upon the outer portion of the said shaft, means between the handle and cup for locking the shaft against reverse rotation, a gear wheel mounted loosely upon the said shaft within the cup and having a rim provided with gear teeth at its free edge, a spiral spring disposed within the said rim and attached to the said rim and shaft, a shaft journaled through the said plate, and a gear train carried by the inner face of the said plate and operatively connected to the last mentioned shaft, the gear train including a gear intermeshing with the said teeth of the gear wheel.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

GUY L. BONHAM.

Witnesses:
KATE E. WHITMAN,
H. C. WHITMAN.